AMERICAN JOURNAL OF PHARMACY

AND THE SCIENCES SUPPORTING PUBLIC HEALTH

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E D I T O R I A L

On these pages the editor offers his opinions, unshackled by advertising patrons and unrestrained by anything save a sense of the decent and the truthful – the editor, alone, is responsible for their type, their tone and their tenor.

GULLIBLES' TRAVAILS

IT is a queer commentary on the gullibility of the modern generation that most of its health education comes not from legitimate, expert, qualified sources, but from coiners of catch phrases and sounders of sonorous slogans who conduct their subsidized courses of lectures in the advertising columns of our irrepressible and irresistible press, and in the wide open university of airborne advertising.

And what a college of liberal arts this is; millions of morons have matriculated into its lackadaisical courses. Tuition terms are terse and trivial—and any one may enter—and every one may graduate.

The major faculty of this great institution of earning and learning—seems to be mostly the happy faculty of taking a lie, twisting it deftly to make it seem true, salving it with a little sense and greasing it with sound—then sending it along to its destiny.

Witness for instance the advertising pages of any of our current popular magazines and marvel at the nerve and effrontery of the dentifrice advertising copy which blatantly and sinfully notifies its reading public that

'four out of five have it"

when as a matter of fact the very essence of their message—and the eventual success of their tricky campaign clearly prove that only

"one out of ten has wit".

One nationally known toothpaste concern went further and more berserk than the coiner of the silly phrase "remove the film". They saluted Salome's seven veils with the marvelous discovery that toothstains might well adopt the song of the little girl of Conway—"We are seven." And, mind you, their paste will remove one or all of the seven, so specific and scientific is its "cleansing, emulsive and polishing" composition!!

"To enable its salesmen to offer concrete evidence to druggists of the stains that foods, beverages and tobacco leave on teeth, the House of Colgate has supplied 150 salesmen with a small case containing the first photographic reproductions of seven of the most typical stains." !!!

The quotation is from a picayune and cheap piece of advertising trickery sent to the JOURNAL under the following caption:

"We are sending you this story at the request of one of our clients. It is submitted solely for its possible news value to you."

To which we say—that we hope they like the way we used it!

Nor indeed is this type of health education confined solely to the dental domain. Its curriculum is unlimited. Under its magic ministry, yeast—common kitchen yeast—is no longer a cook's accomplice, breeder of gas in bread—but a full-fledged medical fellow, with credentials from funny faced German geheimrats and from physicians in waiting to queens and ten-spots. Yeast has quit the kitchen for the medicine kit, of which, if we believe its sellers, it need be the only tenant.

A commonplace mouth wash graduates to halitotic eminences with one breath—and a bad one—and with another reaches a peak of performance disposing of common dandruff. In addition, if its bacteriostatic value is as high as the package promises, it should have no difficulty whatever in disposing of even the kind of dandruff that jumps.

In the past decade more diseases have been discovered and named by writers of advertising "hooey" than by all the white-faced workers in the scientific field. The athlete's foot has it all over parrot fever as a popular up-to-date malady, and B. O. is vastly more to be dreaded than the old-fashioned lung-blasting T. B.

Cough drops are vitamin-varnished and Trade and Mark, the spinached Smithsters, earn again the public plaudits—and turn their dues to dividends.

Elsewhere and plentywhere is spread the lying message of a new star—of first magnitude—in the hokum firmament—a cure-all that challenges the medical dictionary to name any disease which it will fail to remedy. The faces of low priced and lower principled (alleged) physicians illuminate the copy. They testify to its marvels in words they never had the intelligence to voice or understand.

And people who run and read—read and run to the nearest shop to beg or buy a bottle.

Girth control—for Fisher bodies—is for the moment more on the roster than birth control—and vitamins vastly more stressed than sensible foodstuffs. Crank-case oil, frightened with vitriol to a palatable paleness, is paraded under sonorous synonyms, and recommended as the suavest, smoothest persuader of a pretty peristalsis.

Red ray lamps that emit no better emanation than a red hot plate of pepper pot, are pictured as the health-granting gifts of God.

Indeed we could continue *ad libitum, ad nauseam,* with such examples of the advertising university's exploits—but for the present sufficient has been cited to prove that most of the dental-dietetic-medical-cosmetic and comic education of America unfortunately comes from this source, and that today, more than ever, the land of the free is the home of the rave.

IVOR GRIFFITH.

Phenolphthalein Studies. B. Fantus and J. M. Dyniewicz, *J. A. M. A. 108,* 439 (1937). Over a thousand samples of urine examined were from persons to whom had been administered therapeutic doses of phenolphthalein. The patients studied were selected to cover both normal individuals as well as those who by reason of age or infirmities might be expected to be more susceptible to kidney irritation.

The free phenolthalein was determined using a colorimetric test with sodium hydroxide. That portion in the conjugated form was converted to the free by boiling in the presence of hydrochloric acid, shaking out with ether and determined separately. Free phenolphthalein was found only in a relatively small percentage of cases, whereas the conjugated form was found in every case following the administration of the drug. Insofar as albuminuria was concerned, not a single case was found wherein phenolphthalein administration was the etiologic factor. In the few isolated cases found it was definitely established that albuminuria existed prior to the phenolphthalein administration.

IN PRAISE OF GOOD MOLARS

MOLARS, not morals charted man's physical course—and in the insurance of his future progress his molars must still have their share of intelligent care.

Unfortunately, in the matter of evolution, man's brain has grown too fast for his teeth, the experiences and opinions of college professors to the contrary notwithstanding.

From the *Pithecanthropus erectus,* the Java man, three-quarters of a million years old, to modern, degenerate man, the decline of dentition is in inverse proportion to the rise and growth of the brain.

In sheer protoplasmic mass, man's brain today is larger than his need, yet someday, and not such a faraway day, his use of it will tax its every nook and crannie. Until that sensible day however, this Frankensteinian organ will be man's handicap. For because of it, or in spite of it, man is no longer an instinct guided, basic being, but an unhealthy, spoiled, convention-bound prodigy among animals.

No longer does he live close to Nature and listen to her counsel, but he has become host to innumerable practices and parasites, his kingdom tumbles to earth with the onslaught of creatures too small to be seen, his fuel and food swell his gastronomic pride but swill their toxic treason through his system.

The faults of his grandparents add to his own mismanagement, and as the end approaches, instead of calmly, smoothly sliding to his soil estate, he childlike, waits, in pain and misery, for death to fetch its soporific rattle.

Eyes, which at sixty, should still give clear vision, vainly stare through solid cataracts, or ogle through spectacled harness. Too often, toothless and hairless, except for periwig or ivories, the old man creeps at evening to his rocking chair and rocks to the tune of cracking arteries.

Civilization has robbed the dietary of many life sustaining elements. Our staple foods have been overground and surfeited with chemicals. The so-called progress in food preservation through canning and bottling and smoking and pickling—artificializes our food and the sterilization so achieved is often a real barrenness.

Nudists are rudists, we charge, and yet science insists that modern man misses much of old Sol's blessings through covering his body with ray-impervious textiles and by living in an air of dust and sunshine obscuring smoke.

Man has come to be an unnatural, convention harnessed, harassed and therefore partly spoiled animal. Did you ever see a cow gawking through a pair of silly spectacles? Does old Dobbin ever need a set of china teeth to grind his morning oats?

Would an elephant live as long as he does if he had some human habits—smoked a pipe, wallowed in vitriolic cocktails, drank his fill of tea and coffee—wore corsets, rarely walked, dodged Fords, made after-dinner speeches, watched the ticker tape, paid his income tax, painted his face with kalsomine, disembowelled himself with crazy crystals, failed to use pepsodent and saw his dentist only twice a year?

Of course not!!!

Yet I say to you that man—the intelligent thinking being—were better in some respects if he were incapable of so readily changing his destinies—if, like his animal kin, he listened more to silent, cellular impulses, rather than to the dictates of custom and convenience.

Today for these and other reasons, man's teeth and jaws are fallen to sad estate. Once they engineered all his milling. But now the buzzing burr-stone wheel and cooks and canners have pre-empted their work.

The cellular builders of jaws and teeth are no longer stimulated by strains and stresses, and so they skimp their job. Modern teeth are softer, modern faces longer. In olden days, teeth were often ground by honest work, clean to their very sockets. Nowadays, even after sixty years of wear, in such that escape the curse of caries, the chewing surfaces are scarcely worn.

Nature levies a heavy toll from structures given to laziness, and because of our disuse of teeth, of dietary deficiencies, they are gradually losing caste and character.

Dental caries, commonly known as decay of the teeth, has been called "the most prevalent disease of mankind"—in all ages and climes —yet in America—tooth-conscious America today—ninety per cent. of our population is so afflicted. Even with care and the expert aid of dental surgeons—to say nothing of Amos and Andy, tooth decay is on the increase.

What then is to be done?

Return to the diet of primitive man? In part, at least, that might be useful and in part, indeed, it is being done. For with our newer knowledge of nutrition, the diversification of our modern diet and the discovery and use of accessory food substances, such as the vitamins,

we are making again available to man, much of the primitive and natural in food.

Viosterol, a modern dietary factor, the vitamin rich irradiated oils—the chlorophyll laden vegetables—the citrus juices—now forming part of the infant's dietary, bid fair to send him on his teethward way—better prepared to find and grind his way to health than most of his immediate ancestors.

But for the present at least, more important than daily fare is daily care of the teeth. Aristotle, over two thousand years ago, observed that the "fewer the teeth the shorter the life"—and his aphorism is as pungently pertinent today as ever it was. Tooth care and mouth cleanliness are prolongers of life, and if life is worth extending this is a certain insurance.

IVOR GRIFFITH.

Antiseptic Value and Pharmacology of an Improved Calomel Ointment. E. E. Vicher, R. K. Snyder and E. N. Gathercoal, *Scientific Section, A. Ph. A.,* August, 1937. The particle size of ordinary calomel varies from 2-50 microns and old samples may have particles as large as 110 microns. A new calomel was prepared by precipitation in the presence of gelatin, involving the reaction between sodium chloride and mercurous nitrate. The suspension was purified by dialysis and exhibited a particle size of 0.5 microns or less. When concentrated until 3 cc. contained 1 gm. of calomel, such suspensions could be incorporated directly to prepare a calomel ointment. Official Calomel Ointment was found to possess an inhibitory action which gave clear zones in the F. D. A. Agar Plate Test varying from 0.5 to 2.0 mm., whereas ointments prepared from the new calomel displayed zones of from 7 to 12 mm. Of all the official ointments only Ointment of Mercurous Nitrate developed a broader zone in the F. D. A. Agar Plate Test than the new calomel ointment. The official calomel ointment corresponds in antiseptic value to a 1:10,000 mercuric chloride ointment, but the new calomel ointment is almost equivalent to a 1:100 mercuric chloride ointment.

Although the rate of absorption of the new ointment appears to be more rapid than that of the official product, only slight differences in toxicity existed. The new ointment appears to be stable since no decrease in antiseptic power was noted after 3 months' aging.

L. F. T.

ORIGINAL ARTICLES

THE CURIOUS CASE OF SIR JOHN HILL

Compiled by Mary North Chenoweth
Somers Point, N. J.

Sir John Hill was Peck's bad boy in English medical circles around the middle of the eighteenth century.

Garrick epigrammed of him,—

"For physic and farces, his equal there scarce is;
His farces are physic, his physic a farce is,"

But there is no doubt that the indefatigable Hill was a genius of a sort, and the author of the following "Hilliad" is kinder to him than were his contemporaries.

THE collector of herbals sooner or later comes upon the work of Sir John Hill. If, as I did, he acquires the "Family Herbal" of 1775 with its pretty colored plates and the more pretentious "British Herbal" of 1756 with its hundreds of fine engravings, he will be annoyed perhaps at the ambiguous or abusive references most horticultural writings contain when they list the works of the indefatigable Hill. Since there seems to be something worth recalling about this man with his genius for stirring up animosity among his contemporaries, I am going to list the better known books in which he is commemorated.

In 1820, the London Society of Apothecaries authorized the printing of 1,000 copies of a "Memoir", by Henry Field, of the Botanick Garden at Chelsea. This work records, under the year 1743-1744, these two paragraphs:

> "An order was made that no person be permitted to gather specimens from the garden without leave from the director or gardener, and that no person whatever, who is not a Member of the Society, be permitted to walk in the garden without the attendance of the gardener.
>
> "The improper conduct of an individual must be presumed to have been the reason of this prohibitory regulation, for it is stated that Mr. Hill (afterwards Sir John Hill), having exceeded all bounds of reason and good manners in taking specimens from the garden, be in future excluded."

The second appearance of our inglorious hero is in the pages of a "Caricature History of the Georges", by Thomas Wright (1870), where ten pages and two caricatures (one full page) are devoted to his exploits.

Here we learn that "John Hill was born in 1716. His father, who was a Clergyman, placed him as apprentice with a surgeon at Westminster, and having married early, he set up for himself in that profession, but soon dissatisfied with it, he applied himself to the study of botany, and obtained the patronage of the Duke of Richmond and Lord Petre. This pursuit he also relinguished and he next applied himself to the stage, and made several unsuccessful attempts as an actor at Drury Lane, and the little theatre in the Haymarket, in the latter of which he performed the part of the quack-doctor in 'Romeo and Juliet'. He afterward indulged the spleen occasioned by this failure by decrying the best actors of the day, and he wrote a book on the art, under the title of 'The Actor' chiefly with this object. Hill now returned to surgery and botany, and was taken up by Martin Folkes, the president, and some other leading members of the Royal Society, and under their auspices published, in 1746, a tolerably well-executed translation of Theophrastus on Gems. He became thus introduced to the booksellers, and was employed to write a Natural History in three 'folio' volumes, to compile a supplement to Chamber's Dictionary, and then to edit the British Magazine. With the latter Hill set up in the full character of a popular writer, and at the same time broke with his patrons in science. On the publication of his Supplement to Chambers; he made an attempt to obtain admission into the Royal Society; but his unprincipled character being now well known, he was rejected, and in revenge, abused Folkes and his former friends, and attacked the Society in a scurrilous review of its publications, and published a hoax upon it in a clever though ridiculous pamphlet (under the pseudonym of Abraham Johnson), entitled 'Lucina since Concubitu'.

"This book made some noise at the time and gave birth to several other pamphlets. Hill now obtained a foreign diploma of doctor of medicine, drove about in his chariot, and took upon himself all the airs of a fashionable author . . . he strutted about with an affected air, was a regular attendant at the theatres and places of amusement, exhibited himself at the fashionable lounges, aped the manners of a fop, and pretended to enjoy the favors of ladies of quality. Yet he was

a ready and prolific writer, and he now attempted to shine in almost every walk of literature, as well as in science.

". . . No writer was so unscrupulous as Hill in publishing private scandal, and in adding to it from his own invention. After a while he was seized with a passion of writing for the stage; but it was not till 1758 that he prevailed on Garrick to bring out his farce of 'The Rout', which was damned on the second night. Garrick's epigram on the occasion will not soon be forgotten:

'For physic and farces, his equal there scarce is;
His farces are physic, his physic a farce is.'

"Perhaps no man was ever so bold an adept in literary quackery as Dr. Hill. As if with the intention of throwing all his contemporary essayists in the shade, he commenced in the spring of 1752 a daily essay, under the title of the Inspector, which was first published in the Daily Advertiser and was afterward collected into two octavo volumes. During this year the pen of Dr. Hill was so active, that he is said to have cleared by his writings no less a sum than fifteen hundred pounds!"

Hill's literary quarrels and social feuds were the subject of various broadsides and reached the stage more than once. The names of Fielding, Garrick, Smollett and Christopher Smart figure in the chronicle. Smart published a bitter satire against him, entitled "The Hilliad". "Dr. Hill", says Wright, "has deserved our notice as a somewhat exaggerated type of the fashionable literary men of the latter half of the reign of George II".

Leaving Wright for Chamber's "Book of Days" (1883), we find under November 21st, a biography which adds more entertaining details of Hill's tumultuous life, another cartoon, more epigrams and this gracious, final admission:

> "The latter end of Hill's life was better than the beginning. Though his first wife was the daughter of a domestic servant, he succeeded in obtaining as a second helpmate, a sister of Lord Ranelagh. At the parties of the Duchess of Northumberland, he was a frequent guest, and he acquired the patronage of the Earl of Bute. His last and most valuable work, a monument of industry and enterprise was a complete 'Vegetable System' in twenty-four folio volumes, illustrated by 1600 copper plates, representing 26,000 plants, all drawn from nature. This work was in every respect far in advance of its period, and entailed a heavy pecuniary loss on its author. A copy of it, however, which he presented to the king of Sweden, was rewarded with the order

of the Polar Star, and from thence forth the quondam apothecary styled himself Sir John Hill. Lord Bute appointed him to the directorship of the royal gardens, with a handsome salary, but it does not seem that the grant was ever confirmed. In spite of the efficacy of his Tincture of Bardana, which Hill warranted as a specific for gout, he died of that disease on the 21st of November, 1775."

"The Quacks of Old London", by C. J. S. Thompson (1928), devotes a brief space to Hill culled from the earlier mentioned accounts, as for instance the following: "A wit once sent Hill these lines,

> Thou essence of dock, valerian and sage,
> At once the disgrace and the pest of this age.
> The worst that we wish thee, for all of thy crimes,
> Is to take thy own physic and read thy own rhymes."

To this Hill replied:

> "I'll take neither sage, dock nor balsam of honey,
> Do you take the physic and I'll take the money."

In conclusion, I may be permitted to quote all that is said of Hill by the Associate Curator, W. J. Bean, in his work 'The Royal Botanic Gardens Kew" (1908):

> "One other notable man deserves to be mentioned here. This is Sir John Hill, who in 1768 published the first Hortus Kewensis, containing a description of the exotic and rarer native plants cultivated in the garden. He was born at Peterborough about 1716 and, after carying on a lucrative business as an apothecary in London, obtained a diploma of medicine from St. Andrews. He was the author of several works on botany, and a protege of Lord Bute; through him no doubt, as well as from inclination, he took a keen and friendly interest in Kew. His lengthy work, 'The Vegetable System', the publication of which extended from 1759 until his death in 1775, appears to have led to his financial embarrassment, but brought him the knighthood of the Swedish order of Vasa.
>
> "There is a curious pamphlet, entitled 'An Address to the Public', by his widow, preserved in the Kew Library, wherein Lord Bute is denounced in bitter terms for his treachery and heartlessness in inducing her husband to undertake this work and then leaving him in the lurch. In this pamphlet Lady Hill alludes to her husband's disposing and superintending a part of the Princess of Wales's garden at Kew on account of which his attendance was required at least once a week there. From this it appears probable that he assisted in the laying out of the botanic garden in 1760."

REPORT OF THE COMMITTEE ON DRUG MARKET TO THE ANNUAL CONVENTION OF THE PENNSYLVANIA PHARMACEUTICAL ASSOCIATION

At Harrisburg, Pa., June 14-17, 1937

The interest which has always been exhibited in this Committee's report impels us again to give it record and prominence in our pages.

THE quality of drugs, chemicals and other pharmaceutic raw materials found in the domestic market still maintains the same gratifying condition as your committee has observed for a number of years. In fact, the proportion of sub-standard products is exceedingly small, as one laboratory reported that they found it necessary to reject only 15 lots out of the 5230 lots examined. These substances included fine chemicals, alkaloids, volatile and fixed oils, and many miscellaneous items. Most of the examinations were conducted according to the methods of the U. S. P. or N. F. Occasionally, more stringent or additional tests were made in those instances where an exceptional product was desired. Some of the samples submitted were brokers' or dealers' preliminary samples, and were offered as representing the stocks that they had on hand.

In the thousands of samples examined, it is most gratifying to learn that there was not one instance of intentional adulteration or of substitution. Most of the rejections were due to the presence of natural manufacturing impurities or, in some instances, to pronounced contamination from the containers. This latter condition was no doubt due to carelessness, and should not prevail in well-regulated establishments.

The favorable condition of the market is no doubt due to the unrelaxed efforts of the analytical laboratories of pharmaceutical manufacturers and of enforcement agencies. The vigilance of the Bureau of Chemistry of the U. S. Department of Agriculture in the inspection of imports, particularly in the crude drug field, is a highly important factor in maintaining quality. During the past year it was necessary to detain or refuse the release of colocynth pulp, dandelion root, digitalis leaves, ergot, fennel seed, gentian root, gum benzoin, gum myrrh, henbane, ipecac, jalap and kamala. Some of these shipments were quite

large, amounting in one case to 545 bags and in another case to 285 bales. In those instances where it is possible to recondition or clean the shipment, it is released under bond by the Department and finally inspected to determine if it complies with the standards that apply to it.

An investigation of the quality of chemicals showed that rejection was usually due to the presence of a small amount of impurity, and sometimes, as in the case of sodium taurocholate, to an excess of water. Occasionally, it is found that a substance is persistently off standard as in the case of four shipments of arsenous iodide U. S. P., which was rejected because of an excess of free iodine. Free iodine was also reported in samples examined last year. Iron glycerophosphate and hydrastine hydrochloride were slightly below the N. F. requirements. A shipment of sodium citrate U. S. P. X was received in place of the U. S. P. XI article as ordered; this was probably an error in shipment.

One shipment of acetanilid U. S. P. was refused because it was contaminated with a blue-colored substance. This impurity is not covered by the U. S. P. tests, but the manufacturer stated that it is occasionally found in acetanilid.

Acetone and chloroform shipments illustrate the manner in which good quality material is rendered unfit because of the condition of the containers in which they were shipped. The acetone was in metal drums and was rejected because of the presence of considerable contamination from the inside of the container. Three shipments of chloroform in 100 lb. drums were rejected because of contamination with iron rust and other insoluble substances. These shipments were received at different times during the year. The chloroform was undoubtedly of U. S. P. quality at the time of manufacture, but later became contaminated by the metal drum.

Three volatile oils and one fixed oil were not of standard quality. Two samples of oil of peppermint did not comply with the U. S. P. test for solubility in 70 per cent. alcohol. A sample of oil of sweet orange offered by a California producer contained an excess of total solids and was quite dark in color. A sample offered as "French African" did not meet the U. S. P. refractive index standard. A sample of oil of cinnamon was also rejected because it did not comply with the U. S. P. refractive index standard. Two lots of cottonseed oil were rejected because they did not meet the purchaser's standard for physical properties, particularly in regard to color and congealing

point. The U. S. P. tests are not sufficient for their purpose as they are considered flexible enough to cover several commercial grades of purified cottonseed oil.

Several shipments of liquid petrolatum were again found to contain an excess of solid paraffins. They were similar to those reported last year, congealing at about 5° C. and yielding dense clouds at about 3° C. The U. S. P. XI states that liquid petrolatum should not become more than slightly opalescent when immersed in a mixture of ice and distilled water for four hours.

One lot of soft soap U. S. P. was refused because it failed to comply with the U. S. P. test for the iodine value of the fatty acids. This condition was no doubt due to the use of low quality linseed oil in the manufacture of the soap.

In the examination of spices during the current year it has been rare to find any that have not complied with the regulations. The most striking example of non-compliance is mace, in which several samples were rejected upon the basis of their acid insoluble ash (sand) content. (See table on next page.)

The committee wishes to extend thanks to the staffs of the laboratories of Sharp & Dohme, LaWall & Harrisson and Smith, Kline & French for the material submitted in this report.

Jos. W. E. Harrisson.
Raymond G. Anderson,
George F. Applin,
Jos. W. E. Harrisson,
J. Mervin Rosenberger,
John M. Woodside,
J. G. Roberts, *Chairman.*

SPICES

	Ash	Sand	Non-Volatile Ether Extract
Allspice	4.06%–5.15%	0.15%–0.34%	4.70%– 8.70%
Mace	2.00%–4.20%	0.15%–1.80%	24.50%–29.15%
Pepper, Black	4.25%–4.40%	0.10%	8.25%– 8.90%
Pepper, Red	6.30%–6.90%	0.10%–0.15%	15.60%–16.75%
Pepper, White	0.70%–1.75%	0.05%–0.25%	8.35%– 9.35%

	Ash	Sand	Total Ether Extract	Non-Volatile Ether Extract	Volatile Ether Extract
Cinnamon	4.15%–4.95%	0.45%–1.45%	4.15%– 8.70%	2.75%– 3.95%	1.30%– 4.75%
Cloves	5.15%–6.25%	0.20%–0.40%	21.00%–24.80%	5.65%– 5.95%	15.85%–19.15%
Coriander	5.30%–6.35%	0.35%–0.90%	21.05%–21.65%	20.60%–21.10%	0.45%– 0.55%

	Ash	Sand	Ash Soluble	Ash Insoluble	Fat	Crude Fibre
Cocoa	5.10%	0.05%	1.95%	3.15%	17.64%	5.45%

	Ash	Sand	Water Soluble Ash	Water Insoluble Ash	Calcium Oxide	Cold Water Extract	Crude Fibre
Ginger	3.70%–3.99%	0.74%–0.79%	1.24%–2.5%	1.2%–1.75%	0.296%–2.38%	14.0%–15.1%	2.4%–6.0%

ABSTRACTS FROM AND REVIEWS OF THE LITERATURE OF THE SCIENCES SUPPORTING PUBLIC HEALTH

Bacteriology . . . . Louis Gershenfeld, B. Sc., Ph M.
Biochemistry, Nutrition, etc. . . . Arno Viehoever, Ph. D.
Biology . . . . . Marin S. Dunn, Ph. D.
Chemistry . . . . . Arthur Osol, Ph. D.
Pharmacy . . . . . E. Fullerton Cook, Ph. M.
and their assistants

THE WASSERMANN, KAHN AND OTHER SERODIAGNOSTIC TESTS FOR SYPHILIS

By Louis Gershenfeld, Ph. M., B. Sc., P. D.
Professor of Bacteriology and Hygiene, Phila. College of Pharmacy and Science

Testing of blood serum (and spinal fluid) as an aid in the diagnosis and treatment of syphilis is a common procedure today and the frequent use of this laboratory aid has been found to be of real value. The numerous serodiagnostic tests for syphilis can be grouped under two headings: (a) The complement-fixation test, and (b) the precipitation or flocculation reaction.

Complement-fixation Test

In 1901, Bordet and Gengou (*Ann. d. L'Inst. Pasteur, 1901, 15,* 289) devised the complement-fixation reaction, and in 1906 they used this test to prove the etiological relationship of the Bordet-Gengou bacillus (Hemophilus pertussis) to whooping cough. It is the experiments of these workers (Bordet-Gengou reaction or phenomenon), which became widely known as the precursor of all complement-fixation tests and is the basis for the invaluable and widely-used Wassermann reaction for the diagnosis of syphilis.

Complement or alexin is a native constituent of all warm-blooded animals (normal, diseased, or immunized). It is ordinarily not attached to the body cells and remains free in the blood-serum. The source of complement production remains in doubt and its true nature

has never been accurately established. However, considerable data is available concerning its behavior to various agents and when found under different conditions. Complement in blood-serum outside of the body deteriorates rapidly unless the serum is frozen or otherwise treated by special procedures. At room temperature deterioration is practically complete within 24 hours; and serum heated in a water bath at 56° C. for 15 or more minutes will lose all of its complement (thermolabile).

Cytolysins are substances present in the blood-serum of individuals immune to or infected with the respective antigens which cause disintegration (cytolysis) of the latter. If the antigen (substance causing the production of antibodies) is a bacterium, the cytolysin is known specifically as bacteriolysin. If red-blood cells provoke the formation of cytolysin, the latter is known specifically as hemolysin. Cytolysins appear to be composed of two substances, neither one of which is capable of causing cytolysis by itself. One of these is the complement. The other substance, designated as the amboceptor (or sensitizer), is relatively resistant to heat (thermostabile), is highly specific, and becomes attached to (or sensitizes) the antigen which caused its production. It is unable to destroy its antigen, but attached to its antigen, it absorbs or unites or fixes complement. The combination of all three bodies finally results in the destruction of the antigen. The reaction is frequently spoken of as the "fixation of complement" (or "complement-fixation") and the amboceptor is at times designated as a complement-fixing antibody. It is necessary to bear constantly in mind the three substances concerned in cytolysis (or specifically bacteriolysis or hemolysis). It is important to remember that the complement is always the same and that it will always serve for uniting with or fixation by any amboceptor, providing the substance (or antigen) which stimulated the production of the amboceptor is present.

In the application of the above principles, it is possible to adjust a complement-fixation test, so that if the antibody is known, the antigen (which produced the latter) may be found; or if the antigen is known, the antibody may be found (and even determined roughly quantitatively). The detection in either instance depends upon whether or not complement is absorbed or fixed. In the clinical use

of this test, one seeks the amboceptor (complement-fixing antibody), its presence in the patient's serum establishing a diagnosis of the corresponding disease.

Wassermann Test

The Bordet-Gengou reaction was applied, early in its discovery, to the diagnosis of different diseases. August von Wassermann and his associates began experimenting with this test and devised a complement-fixation test for syphilis. It achieved such success and wide usage that the name *Wassermann reaction or test* was applied to it as a more convenient term than that of *complement-fixation test for syphilis.* Today there are several methods of performing the complement-fixation test for syphilis and numerous modifications are in use. There is a tendency at present to restrict the phrase "Wassermann test" to a test conducted with Wassermann's original technique or at least to those techniques which do not vary markedly from the original.

Other Complement-fixation Tests for Syphilis

The Wassermann test requires several biologic reagents, the properties of which are subject to change, with a resultant possible error in the findings. Unless the worker is thoroughly familiar with the technique and conducts the test with care and accuracy, errors in the final result may occur. The modifications of the original technique have been introduced with the thought of improving the delicacy and value of the test. Each of the various methods has its merits and its strong advocates. Anyone familiar with one technique can readily learn the others. On the other hand, the use of many different modifications, all being complement-fixation tests for syphilis and frequently designated as Wassermann tests, has led to confusion and an insistent demand for one standard technique or method. To date, attempts at standardization have been unsuccessful. In the United States, many modifications of the original method are in use. They are all complement-fixation tests for syphilis; and the following are the designations most frequently used for these techniques: Kolmer Test or Kolmer Complement-fixation Test for Syphilis; Hygienic Laboratory Method of the Complement-fixation Test for Syphilis; Noguchi Method; Craig Modification of the Complement-fixation Test; Modification of Hecht-Weinberg-Gradwohl; Wassermann Test

(Ruediger Method); Wassermann Test (Brem Method); and Bellevue Hospital, New York State and Eagle Modifications.

Precipitation or Flocculation Reactions in Syphilis

Michaelis (*Berl. Klin. Wchnscht., 44,* 1477, 1907) noted that a precipitation was produced when heated syphilitic serum was added to a diluted alcoholic extract of syphilitic liver. Since then a large number of precipitation or flocculation techniques have been presented and compared with the complement-fixation test as diagnostic aids for syphilis. Due to the fact that precipitation methods are simpler in their technical manipulation and more economical in that less material and equipment are required, a great amount of research has been carried out so as to make available a satisfactory method. The difficulties encountered are the fact that great care is needed in some of the techniques, as the reactions are influenced by technical conditions. Experience is required for reading and interpreting the reactions, probably more than is required for reading the end-results in complement-fixation tests. However, the techniques are being improved and an attempt at standardization has been made. All of the precipitation tests for syphilis are not a true precipitation reaction in the biologic sense. In order to avoid confusion, it is perhaps preferable to speak of these as "flocculation tests" instead of "precipitation tests" for syphilis. The following are the designations employed for the many flocculation tests for syphilis: Kahn Test [(Standard) and (Presumptive)]; Microscopic Slide Precipitation Tests (Kline Diagnostic Test and Kline Exclusion Test); Micro-Hinton Flocculation Test; Modified Rosenthal Micro-Flocculation Test; Hinton Test; Eagle Modification; Johns Precipitation Test; Rytz Rapid Flocculation Method; Weiss Precipitation Test; Meinicke's Reactions; Sachs-Georgi Reaction; Sigma Reaction of Dreyer and Ward; Muller's Clotting Reaction and the Vernes Reactions.

Efficiency of Serodiagnostic Tests for Syphilis

The serodiagnostic tests for syphilis, especially the complement-fixation tests are so complicated that there are numerous sources of technical error; but these are reduced to a minimum and rendered negligible by skill and experience. Faulty technique will produce

false reactions and erroneous findings. Excluding such errors, for all practical purposes it may be accepted that strong positive reactions in this country are limited to syphilis. Weak positive reactions require careful study with a close scrutiny of the history and clinical findings. Weakly positive reactions may in rare instances occur, but they are negligible as a source of error, as such abnormalities are not ever likely to be mistaken for syphilis clinically. Excluding technical reasons, a negative reaction does not necessarily exclude syphilis as there may be a biologic reason for such negative serological findings. These serodiagnostic tests are not to take the place of clinical diagnosis. They are, however, valuable aids in the diagnosis of syphilis, as a guide to treatment, and to present indications of cure or lack of it.

The evaluation of many of the techniques mentioned above has been detailed recently. Interesting reports concerning these and other methods as presented during the last year, are briefly reviewed. The original sources are to be examined for more complete details.

The Serodiagnosis of Syphilis, with Particular Reference to the Kahn Test. W. C. Mitchell, *Colorado Med. 34,* 311 (1937). The Kahn test has replaced the Wassermann test for the serodiagnosis of syphilis in the Colorado State Department of Health. The technique and advantage of the test are discussed.

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The Dependability of Wassermann and Kahn Tests in the Diagnosis of Syphilis. M. P. Spanswick and R. G. Snyder, *J. Iowa M. Soc. 27,* 102 (1937). Evidence has been presented which show that neither the Wassermann test nor the Kahn test alone is sufficiently sensitive to be depended upon exclusively. The combined results of both tests provide more dependable information as to the diagnosis of syphilis and as to the effect of anti-syphilitic treatment. Doubtful laboratory findings should be carefully checked by repeated examinations, and by comparison with the clinical data before a diagnosis of syphilis is made.

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Kline Test for Syphilis in Patients with Neurologic and Neoplastic Diseases. A. Kafeli and V. B. Dolgopol, *Urol. & Cutan. Rev.*

41, 28 (1937). The Kline test gave a higher incidence of positive reactions for syphilis than the Kahn & Wassermann tests in 327 patients with malignant neoplasms and in 68 patients with neurological diseases.

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The Value of the Kline Exclusion Test in the Serodiagnosis of Syphilis. Results Based on the Evaluation of Serodiagnosis Tests for Syphilis in the United States. C. R. Rein, *Am. J. Syphilis 20,* 515 (1936). In the recent evaluation plan for the serodiagnosis of syphilis the Kline exclusion heated serum test was the most sensitive of all tests in the group giving less than 1% false positive reactions. The low cost of material and the rapidity and ease of performance of the slide tests are in its favor. This test detected more persons with primary and latent syphilis, with varying amounts of treatment than any other test for syphilis, and its routine use is advocated.

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The Hinton Test for Syphilis. The second study of its clinical value in 3,000 patients. L. Hollander, C. R. Schlesinger and C. L. Schmitt, *J. Lab. Clin. Med. 22,* 97 (1936). They conclude that all available tests should be utilized in the establishment of the diagnosis of syphilis, so as to make possible the best service in syphilis.

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A "Rapid" Micro-Hinton and Capillary Hinton Test for Syphilis with a Discussion of the Detection of Syphilis by Serologic Methods. J. V. Davies, *J. Pediat. 10,* 802 (1937).

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Modification in the Eagle Antigens for Use in the Complement-Fixation and Flocculation Tests for Syphilis, and Minor Changes in the Technic of These Tests. H. Eagle, *J. Lab. Clin. Med. 22,* 300 (1936). Modifications are described in the flocculation and Wassermann techniques previously recommended. Improvements are presented in the technique of the Wassermann and flocculation reactions, which are described in detail. The application of the flocculation test to spinal fluid is also described.

A New Antigen and Its Use in the Serodiagnosis of Syphilis. A. Wadsworth and R. Brown, *J. Immunol. 31,* 155 (1936). The authors describe the preparation of an antigen from fresh beef heart tissue. The procedure for a one tube precipitation test is described which when compared with the routine complement-fixation test was approximately 92.2% and 93.5% in agreement.

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The Suitability of Wadsworth's Antigen in the Serodiagnosis of Syphilis. H. Aust, *Arch. Dermatol. Syphilis 174,* 643 (1936); through *Dermatol. Wochenschr. 104,* 136 (1937).

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Application of Chediak's Dry Blood Reaction to the Serodiagnosis of Syphilis. G. Bohme, *Klin. Wochenschr. 16,* 225 (1937). Chediak's dry blood reaction for the diagnosis of syphilis was compared with the Wassermann, Kahn and Meinicke reactions in 1456 subjects. The Chediak reaction was more sensitive than the Wassermann test. The chief advantage of the test is the fact that only 1 drop of blood is needed. The great disadvantage is the high proportion of errors (14.6%). The test should be used only by those highly trained in its performance.

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A Microflocculation Test for Syphilis. J. A. V. Davies, *J. Lab. Clin. Med. 22,* 959 (1937).

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A Rapid Flocculation Method for the Diagnosis of Syphilis. F. Rytz, *J. Lab. Clin. Med. 22,* 82 (1936). A modification in the technique used in the rapid flocculation method, as applied to the spinal fluid, for the diagnosis of syphilis, is described. The new technique makes the test more sensitive.

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Efficiency of State and Local Laboratories in the Performance of Serodiagnostic Tests for Syphilis. U. S. Pub. Health Service, Committee on Evaluation of Serodiagnostic Tests for Syphilis, *Am. J. Pub. Health 27,* 15 (1937). It is suggested that the first report of this committee should be examined (Supplement—100, No. I, to Venereal Disease Information, U. S. Pub. Health Service).

Sensitiveness and specificities varying from 91-100% were obtained in different laboratories with the following diagnostic tests for syphilis: Flocculation tests; Eagle, Hinton, Johns, Kahn presumptive, Kahn standard, Kline diagnostic, Kline exclusion, micro-Hinton and modified micro-Rosenthal. Complement-fixation tests used were: Kolmer, Bellevue Hospital, Eagle and New York State. The Meinicke clarification reaction was also employed.

In some of the state and local laboratories the serologic testing does not compare favorably with the results achieved in the laboratories of the originators of the methods. On the other hand, in other state and local laboratories the results achieved are at least comparable to those obtained with the control tests. Particular attention should be directed to the relative uniformity of the results obtained in practically all of the laboratories in the performance of certain tests. A test of equal efficiency from the standpoint of sensitivity and specificity which yields uniformly successful results in the hands of practically all serologists, is distinctly superior to one which yields less uniform results. It is quite apparent that the performance of some of the tests in some of the laboratories is inadequate. Obviously, in certain laboratories improvement should be brought about in the performance of well-recognized tests, the value of which has been demonstrated in this study and in the first evaluation project. Likewise, some of the tests should either be modified to increase their sensitivity or specificity or both, or be abandoned.

An efficient serodiagnostic test for syphilis should possess specificity of 100%. Any test which yields even 1% of false positive reactions should be modified as to increase its specificity, even with some slight sacrifice of sensitivity. A serologic diagnosis of syphilis unsupported by history or clinical evidence should never be made on the basis of a single positive blood reaction. The committee found no justification for a diagnosis of syphilis in a number of cases, particularly in one series in which the diagnosis had been based upon a single false positive reaction. If a positive blood test is obtained in a person who presents no history or clinical evidence of syphilis, the test should be repeated in the same laboratory, or in another laboratory, utilizing two or more different tests.

The studies made by this committee show that if two tests are to be performed, it is immaterial whether two efficient complement-fixation tests, two efficient flocculation tests, or a combination of one

efficient flocculation test and one efficient complement-fixation test are selected. As in the first evaluation project, this study again indicates relatively equal value to the clinician of efficient complement-fixation tests and efficient flocculation tests as applied to blood specimens.

The experience of the committee shows that it is satisfactory to report the results of qualitative tests as merely positive, doubtful, or negative. In this way the confusion arising from the use of various symbols is avoided.

How the Pharmacist May Assist the Public Health Service in Its Program for the Control of Venereal Disease. Dr. Warren F. Draper, Acting Surgeon General of the United States Public Health Service, addressed the First General Session of the American Pharmaceutical Association at its recent annual meeting. He stressed in a most enlightening manner the extent of venereal infection in this country and described the extensive ramifications of its chronic influences in after life.

Compared with some countries in which a definite program has been in effect by the health authorities for sometime, the United States is in great need of an immediate and active campaign to bring these two diseases, namely, syphilis and gonorrhea under control. The Public Health Service is now actively engaged in such a program. One of the major points to be embodied in the plan is the free supply of all drugs needed for the treatment of syphilis. To some this may seem highly irregular, and yet if the control of syphilis is to be effective no obstacle must stand in the way of its adequate and complete treatment. When one considers that at least some forty injections are required to render a syphilitic patient Wassermann negative, the cost of medication becomes very significant. The supplying of free drugs for syphilis therapy has been a part of every country's program wherein progress has been made in the control of syphilis.

Dr. Draper in speaking of the part that the pharmacist may properly play in this program listed four important points:

I. The pharmacist should never, under any consideration, counter-prescribe for these diseases.

II. He should not even sell drugs when called for by name which are intended for self-medication by the patient.

III. Pseudo-prescriptions or old copies for obsolete drugs should not be filled when the intent is the treatment of venereal disease.

IV. The pharmacist should direct all persons coming to his attention with venereal disease to immediately obtain adequate treatment from a licensed physician and in all other ways the pharmacist should cooperate in educating the laity as to the seriousness of venereal infection and the importance of immediate treatment. L. F. T.

Alcohol Content of Extractive Preparations. E. G. King, L. Goldberg, E. K. Snyder and E. N. Gathercoal, *Scientific Section, A. Ph. A.,* August, 1937. A determination of the shrinkage resulting with various mixtures of alcohol and water gave the following results: 50 and 60 per cent. alcohols decrease 3.15 per cent., 40 per cent. alcohol decreases about 2.95 per cent., 80 per cent. alcohol 2.20 per cent., and 20 per cent. alcohol about 1.20 per cent.

When the C_2H_5OH content of an aqueous-alcoholic mixture is determined by the official distillation method the result is always lower than the theoretical, the average of many results being 0.70 of a percentage point lower. With solutions of vegetable extractive matter containing no volatile matter except alcohol and water the average of many determinations was 0.76 of a percentage point lower than the theoretical value. The average increase in volume produced in solutions of tannic acid, dextrose and gentian extract in aqueous-alcoholic mixtures was found to be about 3.2 cc. for each 5.0 gm. of solute in 100 cc. of solvent.

The average reduction in C_2H_5OH content of the solution when the initial solvent was 50 per cent. alcohol was 1.41 per cent. for each 5 gm. of solute. With 75 per cent. alcohol 2.04 per cent. for 5 gm. and with 33 per cent. alcohol 1.05 per cent. for each 5 gm. of solute added.

Moisture present in a drug was found to proportionally decrease both C_2H_5OH content and extractive content in fluidextract and tincture of gentian.

There is evidence that a considerable proportion of the decrease in the alcohol content of extractive preparations compared with that of the menstruum is due to loss of alcohol by evaporation during the manufacturing process. By careful manipulation to prevent such

evaporation it was possible to increase the alcohol content of fluidextracts by 5 to 6 percentage points. Although variation in amount of extractive may explain some of the difference in alcohol content of extractive preparations, it is believed that the evaporation of alcohol is the principal factor involved. L. F. T.

Triethanolamine Salts of Fatty Acids. G. W. Fiero, *Scientific Section, A. Ph. A.,* August, 1937. The surface tension, pH, amount of foam produced and the emulsifying power of salts of triethanolamine were reported. The following organic acids were used to prepare the series of salts: isocaproic, caproic, caprylic, capric, lauric, myristic, palmitic, stearic and oleic.

Although the laurate contributed the lowest surface tension to water of the group studied it did not depress the surface tension as efficiently as ordinary soap.

Of considerable interest was the observation that increase in C number of the combined acid increased the ability of the compound to function as an emulsifying agent. Thus the stearate was found to be the most efficient of the group, 1 per cent. sufficing to emulsify 25 per cent. of mineral oil. L. F. T.

Stable Supersaturated Calcium Gluconate Solutions. G. L. Jenkins, *Scientific Section A. Ph. A.,* August, 1937. Studies of various calcium salts of a series of sulfonic acids were reported with reference to their ability to stabilize calcium gluconate solutions. The calcium salt of methylene disulfonic acid is relatively non-toxic and non-irritant and when combined with calcium gluconate makes possible the preparation of a stable solution containing the equivalent of from 10 to 30 per cent. calcium gluconate. L. F. T.

Toxicity of Propylene Glycol. J. E. Wetherby and H. B. Haag, *Scientific Section, A. Ph. A.,* August, 1937. The acute toxicity of propylene glycol was investigated when administered orally, subcutaneously, intramuscularly, and intravenously to white rats and intravenously using rabbits. The results were in agreement with those re-

ported by other workers and proved propylene glycol to be less acutely toxic than either ethylene or diethylene glycol. The chronic toxicity was studied by administering this material to growing rats by way of their drinking water. Concentrations of 3.0 per cent. or less caused no appreciable change in rate of growth. A concentration of 10 per cent. caused a temporary slowing in rate of growth which lasted for about ten days. Rate of growth after this initial period of slowing became essentially normal. Microscopic examination of internal organs of these animals at the end of 100 days showed no significant abnormalities. Analyses of urine from rats and dogs which had received propylene glycol orally showed no significant increases in the amounts of oxalic acid secreted by these animals.

Hemolysis of human blood was produced *in vitro* by diethylene and propylene glycols in concentrations greater than 0.14 molar.

L. F. T.

Liquor Antisepticus. K. S. Howell, L. Goldberg, R. K. Snyder and E. N. Gathercoal, *Scientific Section, A. Ph. A.*, August, 1937. The test now official in the N. F. VI for boric acid which involves the evaporation of a 10 cc. sample at 100° C. weighing, adding 10 cc. of alcohol igniting and weighing is not reliable due to the effect of heat on boron compounds. A new quantitative test is reported based on the color produced with a diluted Turmeric T. S. The new test is accurate to at least 96 per cent. of the theoretical content of boric acid and no interference is encountered from the other compounds present.

There exists a physical incompatibility in the N. F. VI formula between the chlorthymol and eucalyptol. A new formula for Liquor Antisepticus is suggested as follows:

Boric Acid	25.0 gm.
Thymol	0.5 gm.
Chlorthymol	0.5 gm.
Menthol	0.5 gm.
Methyl Salicylate	0.2 cc.
Eucalyptol	0.1 cc.
Oil of Thyme	0.01 cc.
Alcohol	300.0 cc.
Water, a sufficient quantity to make	1000. cc.

This proposed formula presents no incompatibilities, it is more highly antiseptic than the present official solution, is not so acrid or pungent in taste, yet preserves the same aroma, is less difficult to compound and is less expensive. L. F. T.

Chemical and Clinical Aspects of Sodium Perborate Therapy. L. L. Manchey and S. Lee, *Scientific Section, A. Ph. A.,* August, 1937. The harmful effects of sodium perborate therapy in the treatment of Vincent's infection and related conditions is attributed to its excessive alkalinity. The simple dilution of sodium perborate monohydrate with 70 per cent. of inert tricalcium phosphate does not remove this undesirable irritation. However, the substitution of a portion of the tricalcium phosphate by sufficient monocalcium phosphate to deplete the alkalinity of the perborate produced a product causing no untoward effects when applied to the mouth tissues of test subjects.

The stability of such mixtures of sodium perborate monohydrate, tricalcium phosphate and monocalcium phosphate was investigated and reported favorably. L. F. T.

The U. S. P. XI Standard for Tincture of Digitalis. L. W. Rowe and H. W. Pfeifle, *Scientific Section, A. Ph. A.,* August, 1937. A series of direct and indirect experimental comparisons between the U. S. P. X and the U. S. P. XI standards for Tincture of Digitalis showed the latter to be about 50 per cent. stronger. Using the 1 hour frog method of assay and taking the International Standard of 1926 as 100 per cent. the following values were obtained:

International Standard 1926	100%
U. S. P. XI	135%
Canadian Standard	118%
International Standard 1936	109%
U. S. P. X	83%

These figures are of interest since the U. S. P. XI Standard theoretically should be equal to the International (1936) and Canadian Standards. L. F. T.

The Effect of the Purification of Piperidine on the Activity of Derived Local Anesthetics. T. H. Rider and E. S. Cook, *J. A. C. S. 59,* 1741-42 (1937). The authors review the chemical properties and preliminary pharmacological activities of a group of compounds of piperidine and 2-methylpiperidine, one of the contaminants present in commercial piperidine. They show that little, if any, detectable chemical difference exists between the anesthetics prepared from the purest piperidine and those prepared from the less pure fractions, but they are unable to explain the marked difference in physiologic activity. The data shows much less active products are obtained when piperidine containing either high or low boiling material is used, even though the end-products were carefully and repeatedly recrystallized. The effect of 2-methylpiperidine is demonstrated in three pairs of local anesthetics containing piperidine and 2-methylpiperidine. The unmethylated homologs are found to be more active in the phenylmethane series, but the reverse is true in the benzoate series. L. J. K.

Some Barbituric Acids Containing the 2-Methylallyl Group. W. J. Doran and H. A. Shonle, *J. A. C. S. 59,* 1625-26 (1937). Several therapeutically active barbituric acids have been produced by substitution of allyl groups in the 5-position of the barbituric acid nucleus. Barbituric acids containing various unsaturated aliphatic groups have previously been known. The authors have prepared and examined a series of barbituric and thiobarbituric acids containing the 2-methylallyl group. A series of thirteen new malonic esters containing this group, as well as eighteen new barbituric acids and four new thiobarbituric acids, have been prepared. Their preparation has been outlined, and tables are included listing some of their physical and pharmacological properties. The pharmacological study has shown the thiobarbituric acids to be less satisfactory than the corresponding barbituric acids. In some cases, the former compounds produced convulsions together with sedative effects, while others showed no sedative effect. L. A. R.

Treatment of Scabies with Benzyl Benzoate. L. Goldman, *Arch. Dermat. a. Syphilol. 36,* 140 (1937). Employed in Denmark for sev-

eral years and becoming popular on the Continent, the advantages in the use of benzyl benzoate for scabies are that the applications are odorless, non-irritating to the skin, active lesions are cleared up after only one day of treatment, dermatitis if present is not aggravated and, finally, pruritis markedly diminished.

As used at the Finsen Institute at Copenhagen the formula is:

Benzyl benzoate	50 gm.
Liniment of soft soap	65 gm.
Alcohol	30 gm.
Distilled water	5 gm.

This provides an amount sufficient for one adult patient.

A hot soap bath is followed by the application of about 75 gm. of the well-shaken mixture with a small brush over the body; after drying the application is repeated. On the following day, another hot soap bath is followed by a fresh change of clothes. Night clothes and bed linens should be boiled as in other forms of scabies. I. C.

Cosmetic Dermatology I. Triethanolamine. H. Goodman, *Arch. Dermat. a. Syphilol. 36,* 116-118 (1937). Triethanolamine is a powerful cleansing agent and has a softening effect on the skin. It helps to remove blackheads, grease and the scaliness of seborrhea. As high as 15 per cent. content in preparations produces no caustic action or irritation to the skin.

Emulsion for Normal Skin—Stearic acid, 1 part; triethanolamine, 1 part; water, to make 100 parts.

Triethanolamine Cream Base—Stearic acid, 8 parts; triethanolamine, 1 part; water, to make 100 parts.

Emulsion for Acne and Blackheads—Stearic acid, 10 parts; triethanolamine, 1 part; water, to make 100 parts.

Melt stearic acid; add to mixture of triethanolamine and water brought to same temperature and mix.

Triethanolamine Oleate Soap—Oleic acid, 11 parts; triethanolamine, 5 parts; water, to make 100 parts.

Mix at cold temperature. I. C.

CORRESPONDENCE

Editor's Note: The following communication is self explanatory, this comment being made only to emphasize the genuineness and sincerity of Dr. Meuser's statement. His cause deserves the heartiest support of American Pharmacy.

503 Dufferin Avenue, Saskatoon, Canada,

August, 1937.

Dear Fellow Pharmacists and Friends of Pharmacy:—

In order that the accompanying statement regarding pharmacy in West China, and the reason for its being presented at the present time may be more clearly understood I beg to offer a brief word of explanation.

I have just recently returned to this country for my third furlough after spending approximately twenty years of exceedingly interesting work in pharmacy in China, most of which was connected with the Department of Pharmacy of the West China Union University, and I wish first of all to convey the cordial greetings of pharmacy in China to all pharmacists and friends of pharmacy in United States and Canada.

The West China Union University, situated in Chengtu, in the far western province of Szechwan, is under the joint management of five different missionary societies, representing churches in United States, Canada and England. The courses taught include Arts, Science, Education, Medicine, Dentistry and Pharmacy. The Department of Pharmacy is the most recent addition to the University, having been opened in 1932. It is temporarily housed in one of the Medical-Dental buildings. *It is the only institution teaching pharmacy in a population of over one hundred million people.* Thus its opportunities and possibilities of development for real pharmaceutical service is quite unique. Like medicine and dentistry it promises to become a

very popular course, but its development and usefulness are very seriously handicapped because of lack of finances, and particularly because of the lack of a pharmacy building in which to work.

The teaching staff of the Department of Pharmacy with the cabinet of the University (composed of leading Chinese and Westerners) have given very careful consideration to ways and means of developing the department so that it will be in a position to render the co-operative pharmaceutical service so urgently needed and desired by its allied professions,—medicine, dentistry, and nursing, and by the great and needy masses of people of West China. The decision of this group of leaders was that the need of most vital importance is a pharmacy building to adequately accommodate the department in an enlarged program of training of pharmacists for the many and important positions awaiting them. It was decided that the co-operation of western pharmacists and pharmaceutical institutions should be solicited in this project. Indeed, it is difficult to see how pharmacy in West China can make further progress without the help of its friends in Western lands.

I am requested, therefore, by the Department of Pharmacy of the West China Union University to present this pharmacy building project to you for your symphathetic consideration and to appeal to you for your practical assistance and co-operation toward its realization. It may be here added that the maintenance of this building will be otherwise provided.

The accompanying statement is necessarily brief, but I shall be only too glad to explain more fully such further details as may be desired either by correspondence or by personal visitations when feasible. Please be free, therefore, to write to me at any time. My home address during furlough period is 503 Dufferin Avenue, Saskatoon, Canada.

With kindest regards, very sincerely yours,

E. N. MEUSER.

SOLID EXTRACTS

By Ivor Griffith, Ph. M., Sc. D.

Despite the form in which this information is presented it may be accepted as trustworthy and up-to-date. Original sources are not listed but they may be obtained upon request.

I do not know the canons of the Church of Rome nor its history, well enough to identify the origin of the custom of sea-food for Friday. In any event it is a good custom, for though Friday euphoniously admits of a fry—fried fish will furnish our weekly requirements of iodine far better than anything else we might fry, or try. And so, much like the Mosaic indictment of pork whereby our Jewish friends are denied the blessed privilege of a ripe red ham unless they call it pickled salmon —Friday for fish may have had a hygienic sanitary origin.

Moses may have fooled Pharaoh with a lot of phony tricks, but he led his people with real thinking.

The art of the ancients was in knowing how, yet not knowing why. Moderns are apt to deride some of the long-ago used zoological medicines, moss from the dead man's skull, tincture of toes, spirit of sweat and other such unrefined materials, but there was much that was elemental, and therefore correct in the medical art of the ancients. For instance, the use of liver in therapy, is believed by many to be a brand new application. But listen to this—The value of liver in the treatment of anemia was hinted at in the Douay version of the Holy Bible. In the "Book of Tobias," Chapter 6:6, we read:

"Then the angel said to him. Take out the entrails of this fish and lay up his heart and his gall and his liver for thee. For these are necessary for useful medicines."

I commend to advertisers of popular laxatives a bit of copy written centuries ago by Quarles, a contemporary of the Bard of Avon, who wrote thus on the function of the intestines:

"His bowels are the sinke whose part to draine
All noisome filth and keep the kitchen cleane
His eyes like christall windowes cleare and bright
Lets in the object and lets out the sight:
And as the timber is, or great or small,
Or strong or weake; 'tis apt to stand or fall."

States an old Welsh proverb in a much clumsier English dress: "Salt brings balm to every human woe—but it must be as salt of tears, as salt of honest sweat—or as salt in the heart of the sea." The old Welshman whose nimble tongue and nimbler wit composed this Cambrian proverb could hardly have known that the salt of tears, the salt of sweat, the salt of blood and every body salt are cycled from the sea.

Salt is eliminated in all our body secretions. The average weight of salt consumed by sensible persons is about one-half ounce a day. Only a little more than one-sixth of this amount is retained as necessary to bring the acid to our gastric equipment, and for other uses, the rest of it being eliminated. Thus there is a ceaseless cycling of salt from the quick to the dead, and back to the quick again. It is for this reason that drinking water containing an abnormally large amount of chlorides is looked upon with suspicion, unless the presence of these chlorides can be explained on other than a sewage basis.

The Bible, especially the Old Testament is richer than we know in further proof of the accurate observations of ancient peoples. Bubonic plague is referred to in Samuel I, Greek version, and it is of particular interest to note that the cause of its spread, discovered within our time, was foreshadowed. The verse reads: "In the midst of the land thereof mice were brought forth, and there was a great and deadly destruction in the city." A commentator sagely remarked that the ancient observers failed to differentiate between the rodents involved. As a matter of fact, the connection between rats and mice and bubonic plague was observed at a very early period, although, of course, the causal relation was not known. The remedial value of music in certain conditions, recognized and put into practice in modern times, is referred to in the Old Testament when young David prescribed for his king, the melancholy Saul, that "there shall be music wherever he goes," and David's harp was Saul's sedative.

We are used to hearing, in a superior sort of way, about the weird ingredients of native Chinese drug-messes, and so are not surprised to learn that the Chinese pharmacopeia includes snake "slough, skin, bile,

flesh, fat and oil, head, eyeballs, eggs, and bones." Yet "snake oil" is still a widely sold commodity in these Enlightened States of America —and it is usually faked at that! Federal seizure and condemnation of "rattlesnake oil liniment" that contained "little if any snake oil" is a matter of recent record. And in France a "treacle" of snake-ingredients survived as an official remedy as late as 1884.

Two hundred years ago, a favorite English remedy for scurvy was "viper bread," which contained powdered viper's flesh and sarsaparilla, while for inducing a sweat physicians recommended "compound tincture of vipers," which was declared very successful in the Great Plague of London in 1665.

Pure water supplies, recognized as far back as the days of Roman grandeur as important to public health, did not reach a really dependable degree of drinking safety until the twentieth century, Ohio Health News, bulletin of the Ohio State Health Department, pointed out.

Quoted by the bulletin was Ellms' "Water Purification": "During the Middle Ages, when disease played such havoc with the people of Europe, polluted water undoubtedly assisted in conveying infection. At the time of the fall of the Roman Empire many of the aqueducts built by the Romans at Rome* and in the provinces were either destroyed or fell into disuse.

"The Moors in Spain during the ninth century constructed some important works as well as repairing in the twelfth century some old Roman works. Until 1183, A. D., Paris obtained its entire supply of water from the River Seine. As late as 1550, Paris used only one quart of water per capita per day, and at the end of the seventeenth century was using but 2½ quarts per capita per day."

Daily United States consumption of water is about 100 gallons per capita.

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*"The Romans possessed three almost independent water services. The least clear and most loaded with sand, such as the Anio aqueduct supplied, was used for public baths and the watering of streets; the clearer water from Tepula and Alsietina served for tanks, fountains and washing troughs; while their very best (Virgo, Marcia and Claudia) was confined to drinking purposes, and these springs were undefiled after the heaviest rains."

BOOK REVIEWS

Done by persons, unafraid to upbraid, but perfectly willing to give praise where praise is really due.

THE TRAFFIC IN HEALTH. By Charles Solomon, M. D. A discussion of patent medicines and cosmetics. Published by the Navarre Publishing Company, Incorporated, New York. Contents, Preface and Introduction, 6 pages; Chapters I to XIII, 351 pages; Bibliography, 18 pages; Index, 21 pages. Price: $2.75.

A little over a hundred years ago there was a book published for physicians and pharmacists which was called "Pharmacologia." Its author was John Ayrton Paris, M. D., F. R. S., F. L. S. Although its author is not mentioned in the medical histories, this two-volume work went into six editions in five years. Its subject matter was the patent medicine "racket" of the early nineteenth century and the work was well done.

About thirty years ago Samuel Hopkins Adams published the "Great American Fraud," which exposed the patent or proprietary medicine "racket" of the early twentieth ventury.

Since that time many books have been published covering the same subject, but no book has been written and printed which is as readable and also as intelligible to the layman.

A list of the chapter titles is illuminating as to the contents: the problem of the patent medicine racket; what to do about it; disease and its treatment; the habit formers, sleep producers, and pain killers; the science of nutrition and the lunacy of diet fads; the habits and customs of the digestive tract; are you too fat or too thin; the infections that beset us; antiseptic facts vs. advertising myths; cures for all ailments; the cosmetic urge—your face is their fortune; medical aid till the doctor comes; in conclusion.

It is not statistical but is narrative in its style. It begins with a philosophic discussion of nostrums, in which the keynote is the fact

that "secrecy is the very earmark of the charlatan" and "there are no secrets in the science of medicine."

The appendix contains a complete bibliography arranged to conform to the chapters of the book.

This book should be in the library of every physician and every pharmacist. It should also be in every public library, for it is interesting reading to the layman as well as informative.

Charles H. LaWall.

CAMPBELL'S BOOK—CANNING, PRESERVING AND PICKLING. By Clyde H. Campbell. Revised Edition, 1937. Published by the Vance Publishing Company, publishers of *The Canning Age*, 67 West 44th Street, New York, N. Y. Containing 724 pages: Contents, 8 pages; Bibliography, 70 pages; Index, 43 pages; Advertising, 6 pages. Price: $10.00.

The first edition of Campbell's Book was published in 1929 after twenty years of service by the author in work in the canning and preserving industries, and also as a consulting and analytical chemist, who for a number of years was one of the official consulting chemists of the Bureau of Foods and Chemistry of the Pennsylvania Department of Agriculture.

A revision of this book is like a graduate degree in educational progress.

The format of the book has been considerably changed for the better. It is now an ordinary sized book and does not require a special book case, reserved for atlases and geographies.

The work contains much valuable information on all of the phases of canning, preserving and pickling of fruits, vegetables and specialties. The first edition contained 36 chapters, while the present revision contains 53 chapters, which shows the measure of the book quantitatively.

The book contains numerous illustrations, many of which are not found in any other text book. There are cuts of general types of apparatus such as homogenizers and mixers, sterilizers and storage tanks; but there are also special machines like pea viners, cherry pitters, photo-electric bean sorting machines, and an official chart of actual sizes of pickles, with their designations.

One very good feature of the book is the attention to the sizes and numbers of cans used in various kinds of procedure, together with the temperature of cooking and the time for sterilization in each case.

The book is divided into sections which contain the following captions: Canning, Preserving, Tomato Products, Pickling, Condiments and Sauces, and Miscellaneous Products.

An indispensable feature of the book is the giving of Federal and State Standards; Commercial or Trade Standards; and the Standards of the Joint Committee on Definition and Standards of the American Association of the Official Agricultural Chemists.

It is not a book of analytical methods, although it contains much information on analytical data which will be useful to the practicing analytical and industrial chemist.

The bibliography is also splendid.

The work is invaluable in a technical library and indispensable for a food chemist.

Charles H. LaWall.

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